TRIPLETT

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Instruction Manual

Model 2590

Transistor Tester

MP MASTER

MA26073

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MODEL 2590
TRANSISTOR TESTER

GENERAL DESCRIPTION

The Model 2590 Transistor Tester is a unit designed for testing power type transistors, signal type transistors and diodes. It provides for testing ICEO (at 9.5V), ICBO at (9.5V) and BETA (at 3V) on both NPN and PNP transistors and for checking leakage and forward currents of diodes.

ACCURACY—The 2590 is accurate to within ±2% of full scale reading on 0-100 DC Microamperes.

SELECTOR SWITCH—To provide selection of NPN, OFF or PNP positions.

FUNCTION SWITCH—To provide selection of BETA gain, ICBO LEAKAGE

ICEO LEAKAGE and forward currents of diodes.

CALIBRATE ADJUSTMENT CONTROL—To adjust to full scale calibration after transistor has been inserted.

BETA SWITCH—Which is in the calibrate position normally and is in the BETA position when pulled down.

POWER—115 Volts, 50-60 cycle, AC.

TRANSISTOR SOCKET AND EXTERNAL LEADS—To allow use with any type basing arrangement.

SCALES—There are 5 scales on the meter:
0-1 MA for signal transistor ICEO;
0-100 MA for power transistor ICEO;
0-500 UA for signal transistor ICBO, and Diode Leakage and Forward Current measurements;
0-1 MA for power transistor ICBO;
BETA range scale of 5-100, also shown as the GOOD ? BAD scale.

OPERATION

Insert line cord into 115 Volts AC electrical outlet. Set Selector Switch on OFF position and Function Switch on the open position. Turn the CAL. ADJ. control completely counterclockwise. Check the

manufacturer's specification on transistor to be tested and set Selector Switch to proper PNP-NPN position. Now insert transistor into circuit using either the socket or the leads provided, again checking the specifications for proper emitter, base, and collector terminals. Before proceeding further it is necessary to determine if the transistor to be tested is of the POWER or SIGNAL type.

Refer to the manufacturer's specifications on the transistor or to a transistor handbook listing transistors and their specifications. The absolute maximum rating of collector current for the transistor under test should be determined. If this rating is less than 500 milliamperes, the transistor should be tested as a SIGNAL type. If the rating is 500 milliamperes or more, the transistor should be tested as a POWER type. The test circuit provides a collector current of 500 microamperes for a SIGNAL type transistor and 500 milliamperes for a POWER type transistor. It is important that the correct determination of SIGNAL or POWER type be made since the testing of most SIGNAL type transistors in the POWER test circuit will result in damage or destruction of the transistor. However, in some cases it may be desirable

to test a POWER type transistor in the SIGNAL test circuit to determine its Beta (hFE) at the lower collector current (500 microamperes).

CAUTION: Do not pull lever switch when making leakage measurements.

Having selected the proper circuit to use in checking the transistor, place the Function Switch in the ICBO position, and read ICBO leakage current on the meter. This leakage will be quite small for almost all transistors. Signal or low power transistors will normally have from 5 to 25 microamperes of ICBO leakage current. ICBO leakage for power transistors will vary but will usually not exceed 500 microamperes. Again, manufacturer's data will guide you. In some cases the ICBO leakage for a power transistor will be quite small, and you may wish to read it on the SIGNAL transistor ICBO test. This is a more accurate measure of the leakage current, but you must be careful not to exceed the 500 microampere full scale value of the meter when in the SIGNAL ICBO circuit.

CAUTION: Do not pull lever switch when making leakage measurements.

For the ICEO leakage test, set the

Function Switch in the ICEO leakage position. The ICEO leakages of a transistor are higher than the ICBO and for signal transistors may be from 30 microamperes up to several hundred microamperes, while in power transistors ICEO may be up to 40 milliamperes. Leakage meter range values are located on the ends of the arcs of the meter dial.

If leakage tests indicate the transistor is not open, shorted, or above specified leakage values, you may proceed with the Beta check.

BETA gain is a measure of the transistors ability to valve, control, or amplify, whichever may be its use. Beta figures vary from 5 to several hundred. The correct value for the transistor being tested can be determined from the manufacturer's specifications. To calibrate the Beta test circuit, turn Function Switch to BETA position, and turn CAL. ADJ. control until pointer is on CAL. mark. If you cannot calibrate to full scale, a re-check of the manufacturer's specifications is in order, as you may have selected the wrong POWER/ SIGNAL switch position. After calibrating, pull lever switch down, and a true Beta reading is indicated on the meter. This is

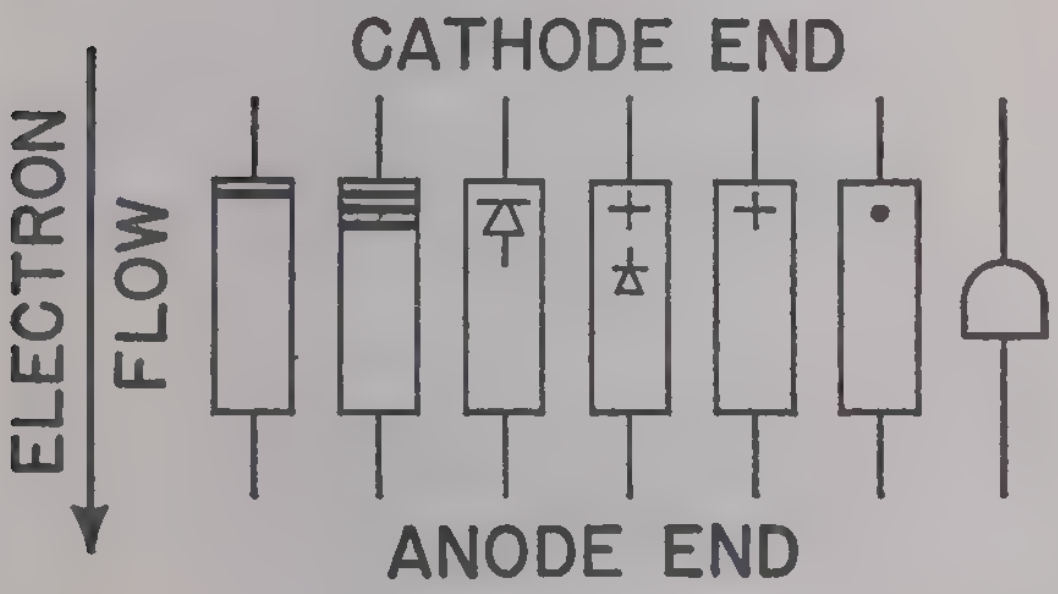
read above the top arc on the meter dial. The red and green "GOOD ? BAD" scale is merely an aid in checking a transistor. For a more accurate indication of a transistor's value, you should observe the Beta reading on the meter and compare it with the manufacturer's specifications.

Intermediate or medium power transistors, which have a very high BETA and/or ICEO, may read above full scale deflection when calibrated with the Selector Switch in the SIGNAL BETA position but may be too sensitive to be tested on the POWER BETA position. In this case, turn the CAL. ADJ. control to the extreme counter-clockwise position; the meter will still be above the CAL. line, but an accurate check can be made by proceeding with normal test procedure (SIGNAL transistor test is used). These intermediate types might be damaged if checked as power transistors.

DIODE CHECK

Turn the function switch to the ICBO DIODE position. Place the collector ("C" red lead) on the cathode end of the diode, and the base ("B" black lead) on the anode end.

The selector switch is then turned to the DIODE LEAKAGE position. The leakage of a good diode will not be over 250 UA on the 500 UA scale. Then turn the function switch to the DIODE FORWARD position. The meter should read above 400 UA on a good diode on the 500 UA scale.

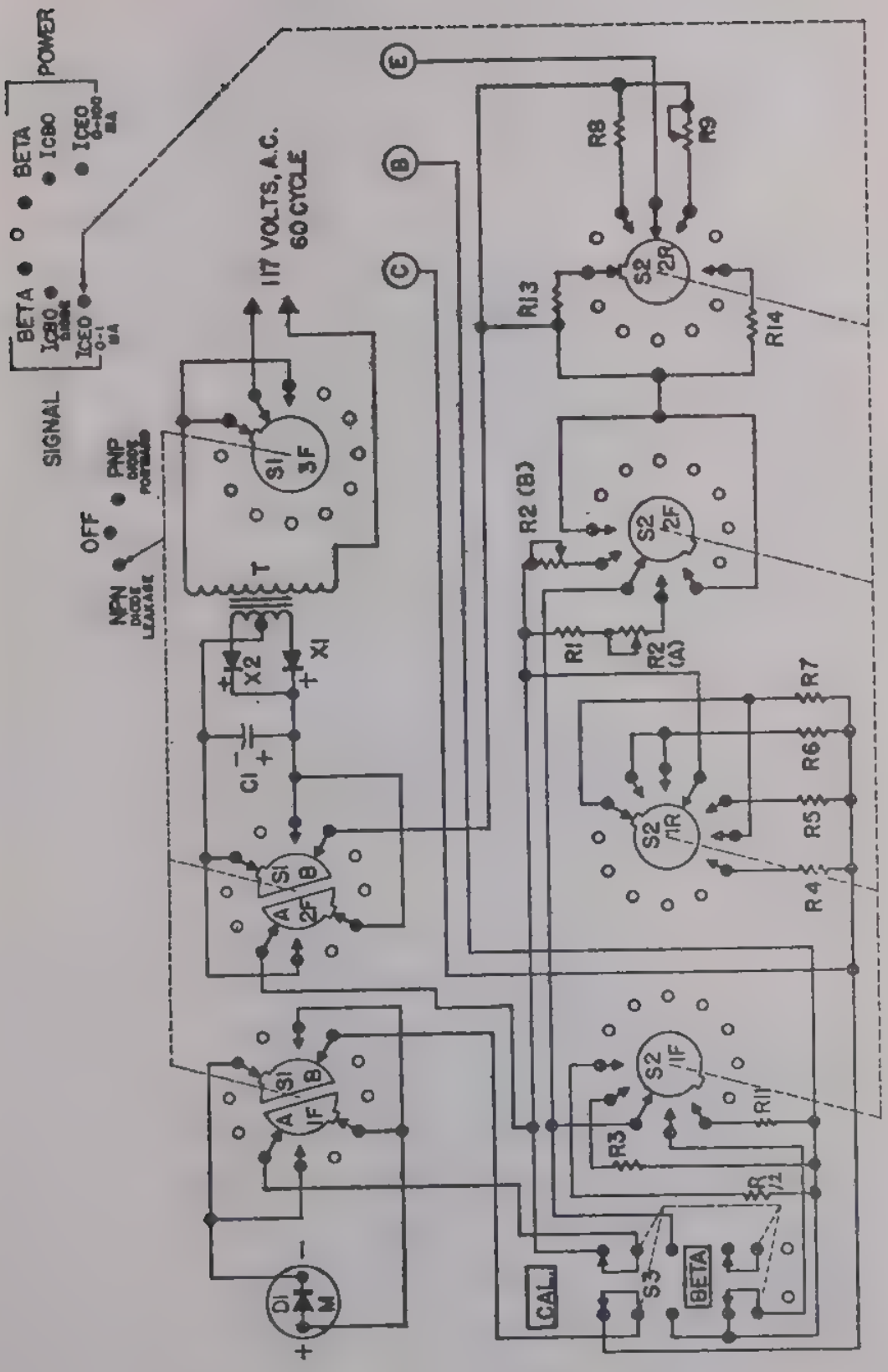


MAINTENANCE

TESTER POSITION—May be used in horizontal or vertical position.

HANDLING—The 2590 tester is constructed to give years of service. However, severe shock or dropping may cause damage to meter pivots, jewels or other moving parts.

REF. NO.	TRIPLETT PART NO.	REQ.	PART NAME	DESCRIPTION
M	52-1431	1	Inst. Assem.	420, 0-100 Mic, 250 Mv.
	2455-195	1	Socket	3 Terminal with Retainer
S1	22A-349	1	Switch	3 Position, 3 Active, 3 Decks
S2	22A-350	1	Switch	7 Position, 6 Active, 4 Decks
S3	22A-359	1	Switch	2 Position, 2 Active, 1 Deck
R1	15-1687	1	Resistor	4700 Ohm, ±10%, 1/2 Watt
R2 (A), R2 (B)	16A-130	1	Resistor	2 Meg. Ohm, 1/2 Watt; 2000 ohm, 2 Watt ±10% Variable Dual
R3, R4	15-4144	2	Resistor	2.5 Ohm, 1%
R5	15-3234	1	Resistor	.49 Ohm, 1%
R6	15-3237	1	Resistor	625 Ohm, 1%
R7	15-3236	1	Resistor	277.7 Ohm, 1%
R8	T-2601-1/2-10K	1	Resistor	10K Ohm, ±10%, 1/2 Watt
R9	T-15-1730	1	Resistor	10 Ohm, 10 Watt Adjustable
R11	T-15-3273	1	Resistor	18K Ohm, ±10%, 1/2 Watt
R12, R13	16-1862	2	Resistor	8200 Ohm, ±10%, 1/2 Watt
R14	15-3274	1	Resistor	68 Ohm, ±10%, 2 Watt
C1	43-231	1	Capacitor	500 MFD, 25 WVDC
D1	11670	1	Diode	Meter Protection
X1, X2	2250-55	2	Rectifier	500 Ma. Silicon
T	23-114	1	Transformer	1 1/2 Amp., Filament 12.6V CT
	33-38	1	Jack	Red, Banana Type
	33-39	1	Jack	Black, Banana Type
	33-40	1	Jack	Yellow, Banana Type
	34-64	3	Knobs	Round with Pointer
	79A-176	1	Leads	Banana Plug with Clips
	2566-A-51	1	Cord	Line Cord 7 feet long
	11583	1		Grip Master
	T-34-7	1	Knob	Round, 9/16 L



Model 2590 Wiring Diagram

TRIPLETT WARRANTY AND CONDITIONS OF SALE

The Triplett Electrical Instrument Company warrants instruments manufactured by it to be free from defective material or factory workmanship and agrees to repair or replace such instruments which under normal use and service, disclose the defect to be the fault of our manufacturing. Our obligation under this warranty is limited to repairing or replacing any instrument or test equipment which proves to be defective, when returned to us transportation prepaid, within ninety (90) days from the date of original purchase.

This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons or service stations in any way so as, in our judgment, to injure their stability or reliability or which have been subject to misuse, negligence, or accident, or which have had the serial number altered, effaced, or removed. Neither does this warranty apply to any of our products which have been connected, installed, or adjusted otherwise than in

accordance with the instructions furnished by us. Accessories including all vacuum tubes and batteries not of our manufacture used with this product are not covered by this warranty.

The Triplett Electrical Instrument Company reserves the right to discontinue models at any time, or change specifications or design, without notice and without incurring any obligation.

Upon acceptance of the material covered by this invoice the purchaser agrees to assume all liability for any damages and bodily injury which may result from the use or misuse of the material by the purchaser, his employees, or others, and that The Triplett Electrical Instrument Company shall incur no liability for direct or consequential damage of any kind.

Parts will be made available for a maximum period of five (5) years after the manufacture of this equipment has been discontinued. Parts include all materials, charts, instructions, diagrams, accessories, et cetera, which were furnished in the standard or special models.

This warranty and conditions of sale are in

lieu of all others expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

REPAIR AND SERVICE

The Triplett Company suggests when you send your tester in for repair or service you indicate the nature of service required. By supplying this information the Triplett Co. or our service stations can serve you better and you will receive your tester back in less time.

The Triplett Electrical Instrument Company
Bluffton, Ohio

Printed in U.S.A. **Part No. 84-108-110868-12**

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